

Claims

1-15. (Cancelled)

16. (Previously presented) A method of producing plant cells that accumulate β -carotene which cells are normally carotenoid-free said method comprising transforming plant material with an isolated DNA molecule comprising a nucleotide sequence which comprises:

(a) an expression cassette capable of directing production in said cells of a phytoene synthase derived from a plant; and

(b) an expression cassette capable of directing production in said cells of a phytoene desaturase derived from a bacteria; and

selecting transformed plant material that comprises the cells that accumulate β -carotene.

17-31. (Cancelled)

32. (Previously presented) A method according to claim 16 wherein said phytoene desaturase is from the CrtI gene of *Erwinia uredovora*.

33. (Previously presented) A method according to claim 16 wherein said phytoene desaturase is fused with a suitable plastid transit peptide.

34. (Previously presented) A method according to claim 16 wherein said phytoene desaturase is expressed under the control of a tissue specific or constitutive promoter.

35. (Previously presented) A method according to claim 34 wherein said phytoene desaturase is expressed under the control of a constitutive promoter.

36. (Previously presented) A method according to claim 16 wherein said phytoene synthase is expressed under the control of a tissue specific promoter.

37. (Previously presented) A method according to claim 36 wherein said phytoene synthase is derived from *Narcissus pseudonarcissus*.

38. (Previously presented) A method according to claim 16 wherein said DNA further comprises a polynucleotide which provides for a selectable marker.

39. (Previously presented) A method according to claim 16 wherein said plant material is transformed via an *Agrobacterium* which comprises said DNA.

40. (Previously presented) A method according to claim 16 wherein said plant cell is a rice plant cell.

41. (Previously presented) A method according to claim 16 wherein said cell is an endosperm cell.

42. (Previously presented) A transformed plant cell obtainable by a method of claim 16.

43. (Previously presented) A plant cell according to claim 42 which is a rice endosperm cell.

44-59. (Cancelled)

60. (Previously presented) A method of producing rice plants that accumulate β -carotene in endosperm cells, said method comprising transforming plant material with an isolated DNA molecule comprising a nucleotide sequence which comprises:

(a) an expression cassette capable of directing production in said cells of a phytoene synthase derived from a plant; and
(b) an expression cassette capable of directing production in said cells of a phytoene desaturase derived from a bacteria;
and selecting transformed plant material that comprises the cells that accumulate β -carotene.